

WHAT IS CLAIMED IS:

1. A lighting device comprising:

(a) a plurality of LEDs disposed in a radial array about a vertical axis;

5 (b) a central member having each LED mounted on a vertical surface thereof,
the central member made of a thermally conductive material to conduct heat away from
the LEDs; and

(c) a hollow member having a dentated surface, wherein the dentated surface
surrounds the LEDs to diffuse the light emitted from the LEDs.

10 2. The lighting device of claim 1, further comprising a curved optical lens disposed
about the vertical axis surrounding the hollow member, wherein the lens converges
beams of light emanating from the hollow member in all horizontal directions.

3. The lighting device of claim 1 having twelve or less LEDs.

4. The lighting device of claim 1 having four LEDs spaced 90° apart in a common
horizontal plane.

15 5. The lighting device of claim 1, wherein the LEDs have a driving current of about
1-5 Watts.

6. The lighting device of claim 1, wherein the LEDs are enclosed in an airtight
enclosure.

7. The lighting device of claim 1, wherein the central member is made of metal.

8. The lighting device of claim 1, wherein the central member is in contact with a thermally conductive element, a portion of said thermally conductive element in contact with the air from outside of the lighting device.

5 9. The lighting device of claim 1, wherein the LEDs are secured to the central member using a thermally conductive adhesive.

10. The lighting device of claim 1, wherein the central member has a centralized right angle prism with a square horizontal cross-section.

11. The lighting device of claim 1, wherein the hollow member is made of an optically transparent, heat resistant material.

10 12. The lighting device of claim 1, wherein the hollow member is made of glass.

13. The lighting device of claim 1, further comprising a light socket base electrically connected to the LEDs.

14. The lighting device of claim 1 designed to fit within a fresnel lens of a navigational light.

15 15. A lighting device comprising:

(a) a lighting assembly having

(i) a heat sink having at least one centralized right angle prism with a square horizontal cross-section with a plurality of vertical surfaces,

20 (ii) a plurality of equispaced LEDs, each LED mounted on a vertical surface of the heat sink, and

(iii) a tubular diffuser having a frosted surface, wherein the frosted surface surrounds the LEDs to diffuse the light emitted from the LEDs; and

(b) a fresnel lens surrounding the lighting assembly;

5 whereby light emanating from the LEDs passes through the diffuser and the fresnel lens to provide a substantially uniform horizontal plane of light.

16. The lighting device of claim 13, wherein the heat sink has one centralized right prism with a square horizontal cross-section with four vertical surfaces.

17. The lighting device of claim 14 having one LED secured to each vertical surface.

10 18. The lighting device of claim 13 having four LEDs spaced 90° apart in a common horizontal plane.

19. The lighting device of claim 13, wherein the LEDs have a driving current of about 1-5 Watts.

20. The lighting device of claim 13, wherein the frosted surface of the diffuser faces the fresnel lens.

15 21. The lighting device of claim 13, wherein the frosted surface of the diffuser faces the LEDs.

22. The lighting device of claim 13, wherein the lighting assembly further comprises a controller for regulating the polarity, voltage, and current limits of the electricity going to the LEDs.

20 23. A lighting assembly comprising:

(a) a plurality of equispaced high flux LEDs;

(b) a controller for conditioning electric power for the LEDs;

(c) a heat sink for transferring heat from the LEDs, wherein each LED is secured to the heat sink; and

5 (d) a tubular diffuser surrounding the LEDs having a roughened surface with a random pattern of microfaceted angles on the surface, wherein the microfaceted angles diffuse the light emitted from the LEDs.

24. The lighting assembly of claim 23, further comprising a threaded light socket base electrically connected to the LEDs.

10 25. The lighting assembly of claim 23, further comprising an adapter for mounting the lighting assembly within a fresnel lens.

26. The lighting assembly of claim 23, further comprising an upper base and a lower base, wherein the heat sink and the diffuser are mounted between the upper and lower bases.

15 27. The lighting assembly of claim 26, wherein the upper and lower bases are made of a thermally conductive material.

28. The lighting assembly of claim 27, wherein the upper and lower bases are in thermal communication with outside air.

29. The lighting assembly of claim 23 having an air circulation means for removing heat.